Abstracts

High-Efficiency GaAs-Based pHEMT C-Band Power Amplifier

J.J. Brown, J.A. Pusl, M. Hu, A.E. Schmitz, D.P. Docter, J.B. Shealy, M.G. Case, M.A. Thompson and L.D. Nguyen. "High-Efficiency GaAs-Based pHEMT C-Band Power Amplifier." 1996 Microwave and Guided Wave Letters 6.2 (Feb. 1996 [MGWL]): 91-93.

A high-efficiency C-Band power amplifier design utilizing AIGaAs/InGaAs/GaAs pHEMT's is reported. On-wafer active loadpull power measurements at 4.5 GHz of a 0.25µ m x 1.2 mm pHEMT exhibited an output power of 0.35 W and power-added efficiency of 79 %. A single-stage MIC amplifier fabricated with a 2.8-mm-wide pHEMT resulted in P/sub out/ = 1.2 W and PAE = 74% at 4 GHz. These results demonstrate the potential of pHEMT's to: significantly improve the efficiency performance of microwave solid state power amplifiers compared to present MESFET designs.

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